

ABSTRACT

A needle-less injector suitable for injecting fluid through a surface includes a housing, a driver, an engine and a trigger. The housing contains a fluid and the engine contains a compressed gas. Upon application of sufficient force to the trigger, the compressed gas is released from the engine forcing the driver through the interior of the housing, expelling the fluid from the housing at a speed sufficient to pierce an injection surface. An aerodynamic diffuser maximizes air flow to the driver, allowing greater injection speed and mitigating pain associated with receiving an injection. Use of the injector is both silent and easy to activate, owing to an O-ring included about the circumference of the exterior of a diffuser operating within the engine. Further, the engine has safety features preventing a portion thereof from separating from the device under elevated temperatures and similar conditions. Engine leakage is obviated by the inclusion of a leakage ring therein.